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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,752	08/07/2001	Maneesh Jain	2002850-0015	3181
24280 7590 10/04/2007 CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			EXAMINER DO, PENSEE T	
			ART UNIT 1641	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/923,752

Applicant(s)

JAIN ET AL.

Examiner

Pensee T. Do

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-13, 15-67 and 113-125 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 59-67, 116-118, 121 and 125 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7-13, 15-58, 113-115 and 119-120, 122-124 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of group I in the reply filed on October 16, 2006 is acknowledged. The traversal is on the ground(s) that the groups are related. This is found persuasive and all the claims are now rejoined.

Amendment Entry & Claims Status

The amendment filed on June 16, 2006 has been acknowledged and entered.

Claims 1-5, 7-13, 15-67, 113-125 are being examined.

Withdrawn Rejection(s)

Rejections under 102(e) and 103 by Baglin (US 6,440,520) are withdrawn

Rejections under 102 and 103 by Gombinsky are withdrawn herein.

Maintained Rejection(s)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 123 is rejected under 35 U.S.C. 102(b) as being anticipated by Andresen (US 4,397,560).

Andresen teaches a photometer for sensing the optical density of a plurality of liquids coated in a microtray provided with a rectilinear array of wells is provided with a device for locating each well in alignment with the photodetectors and a plurality of magnets associated with the microtray and a plurality of magnet sensors associated with the photodetector to provide signals indicative of the specific well in alignment with the photodetector. (see abstract). The plurality of magnets aligning each well is the magnetic region and photodetectors. Since Andresen teaches his device comprises a plurality of magnetic regions and a plurality of photodetectors, such device can perform functional limitations such as trapping the magnetic particles so as to detect an optical signal from the trapped magnetic particles; or when localized the magnetic fields are sufficient to trap a magnetic particle with a trapping energy at least five times greater than the thermal energy of the particle at room temperature.

Claim 124 is rejected under 35 U.S.C. 102(e) as being anticipated by Blankenstein.

Blankenstein teaches a micro flow system for separating magnetic particles; the system comprises of flow channels with a serial array of assay sites and permanent magnets positioned to separate cartridge. (see fig 13, col. 19, lines 60-67). Since Blankenstein teaches his device comprises a plurality of magnetic regions and a plurality of photodetectors, such device can perform functional limitations such as trapping the magnetic particles so as to detect an optical signal from the trapped magnetic particles; or when localized the magnetic fields are sufficient to trap a

magnetic particle with a trapping energy at least five times greater than the thermal energy of the particle at room temperature.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4, 5, 7-13, 15-58, 113-115, 119, 120 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites that the gap is occupancy by magnetic particles prior to introduction of magnetic particles to the device, which is confusing because it seems that the particles are already on the device when they are in the gap.

Claim Rejections - 35 USC § 102

Claims 1, 2, 4, 5, 7, 8, 12, 13, 15, 30-32, 35, 38-41, 122 are rejected under 35 U.S.C. 102(b) as being anticipated by Corney (US 5,178,757).

Corney teaches a substrate (core) comprising a plurality of magnetic regions having gaps between them, wherein the substrate comprises a surface and the magnetic regions have a maximum length parallel to the surface and a maximum width parallel to the surface, wherein the magnetic regions are produced by a plurality of localized magnetic fields (magnets), and the adjacent magnetic regions are aligned with on another in the direction of their maximum length. (see fig. 1). Regarding the limitation in claims 1, 2, 4 and 122: that the magnetic regions produce a plurality of localized

magnetic fields when magnetized and the localized magnetic field are sufficient to trap a magnetic particle with trapping energy of at least three or five times greater than the thermal energy of the particle at room temperature, these are functional limitations.

Since Corney teaches the same arrangement of the magnetic regions on the substrate surface and the magnetic regions are of the same material as those claimed, Corney's device would inherently be able to perform those functions. For claim 5, Corney teaches a device comprising a plurality of magnetic regions having gaps between them, wherein the magnetic regions have north and south poles and adjacent magnetic regions have ends with opposite magnetic polarities facing each other across a gap between them. (see fig. 7). Claim 38 is drawn to a method of making the magnetic region. Thus, it is not given any patentable weight because regardless of how the magnetic region is made, the end result is the same as that of the prior art. Claims 39-41 further limit the magnetic particle. According to claim 1, the magnetic particle is not part of the device. Thus, they are rejected along with claim 1 because if magnetic particles can be trapped in those magnetic regions of the present invention and Corney teaches the same magnetic regions, Corney's device is capable of trapping magnetic particles as well.

Claim 7, Corney teaches that the magnetic regions project above the surface of the substrate. (see col. 3, lines 1-3).

Claims 8 and 122, Corney teaches that the magnetic bars/regions have width and length greater than depth. (see col. 3, lines 1-3). Thus, the magnetic bars must have walls (depth) perpendicular to the substrate. For claim 122, the magnetic regions must also be raised since Corney teaches the magnetic bars have depth.

Claims 12, 13 and 15, Corney teaches the magnetic regions are rectangular and the figures 1-4 show that they are uniform in shape and size. (see col. 3, lines 1-3).

Claims 30, 31, 37 and 122, Corney teaches that the magnetic regions comprise a magnetic material which is cobalt, neodymium-iron-boron or other rare earth materials which can be magnetized to produce poles in the major faces. (see col. 3, lines 9-12). Magnetic material defined in the specification is cobalt.(see pg. 28, line 19) Thus, cobalt is ferromagnetic.

Claims 32 and 35, Corney teaches the substrate to be stainless steel. (see col. 3, lines 14-15). Figure 1 shows that the magnetic regions are surrounded with non-magnetic regions.

Claim 122 is rejected under 35 U.S.C. 102(e) as being anticipated by Baglin (6,440,520).

Baglin teaches an array of elevated features of the magnetic regions, 1 um in diameter at the base and 1 um apart. (col. 3, lines 38-39). The magnetic material of the magnetic region is cobalt. (see col. 4, line 29). Regarding the limitation that the regions produce forces that would trap a magnetic particle between the regions as recited in claim 1, since the magnetic regions of Baglin is the same as that of the present invention, it would produce forces that would trap a magnetic particle between the regions as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 59, 61, 63, 65, 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corney in view of Baselt (5,981,297).

Corney has been discussed above.

However, Corney also fails to teach magnetic regions are arranged in a configuration such that the distance separating the magnetic regions in the maximum length is smaller than the distance which separates the magnetic regions in the maximum width.

Baselt teaches a sensor element comprises of rectangles of metal shortings which are separated by an active area of 3x3 um. Each active area is separated from the other by 6 um). (see figure 7- col. 8, line 49-col. 9, line 8).

It would have been obvious to one of ordinary skills in the art to vary the arrangement of magnetic regions according to the configuration of Baselt in the device of Corney so that the magnetic regions along the maximum length are further separated to provide bigger flow path.

Claims 10, 11, 16-29, 62, 66, 113-121 and 125 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corney.

For claims 10, 11, 62, 66, 115-119:

Corney has been discussed above but fails to teach arranging magnetic regions in a different configuration such as a pattern of rows and columns perpendicular to each

other or in an array of subarrays configuration. Corney also fails to teach the magnetic regions are not rectangular.

It would have been an obvious matter of design choice to arrange the magnetic regions of Corney in a different configurations such as pattern of perpendicular rows and columns or array of subarrays or changing the shape of the magnetic regions since such a modification would have involved a mere change in the size or shape of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

For claims 16-29 and 113, 114, 120, 121, 125:

Corney has been discussed above but fails to teach the minimum length of the gap is approximately 1, 3, or 5 microns; or between 1 and 5 microns or between 5 and 15 microns; or the size of a magnetic particle, less than 200 um; 30nm, 100 nm, 300nm, 500nm, 1 um, 3 um, 5 um, 10 um. Corney also fails to teach the number of magnetic regions is at least 1000; 10,000; 100,000; 250,000; or 1,000,000 per centimeter squared. Corney also fails to teach the maximum length that is between 3-5 times, or between 5-10 times as great as the maximum width.

It would have been obvious to one of ordinary skills in the art to arrive at such values for the gap between the magnetic regions or the number of magnetic regions and the maximum length or width of the magnetic regions since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980) and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering

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the optimum workable range involves only routine skills in the art. In re Aller, 105 USPQ 233.

Response to Arguments

Applicant's arguments filed June 16, 2006 have been fully considered but they are not persuasive.

For claim 123, Applicants argue that Andresen fails to teach a plurality of photodetectors.

Andresen teaches an array of wells, wherein each well is aligned with a photodetector and a magnet (see abstract). Thus, there must be a plurality of photodetectors to align with a plurality of wells in the array.

Regarding claim 124, Applicants argue that Blankenstein fails to teach that the channels is in communication with the magnets.

However, the present claim recites that the channels are in communication with the magnetic regions, not the magnet. The magnetic regions of the recited claims do not have magnets. Magnets can be underneath the magnetic regions and such region would be able to trap particles. Thus, the magnetic regions of Blankenstein are in communication with the channels.

Allowable Subject Matter

Claims 9, 33, 34, 36, 42-58, 60, 64 are free of prior arts.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pensee T. Do whose telephone number is 571-272-0819. The examiner can normally be reached on Monday-Friday, 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pensee T. Do
Patent Examiner
September 13, 2007


LONG V. LE 09/13/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600